In the Specification

Please amend the Brief Description of Drawings paragraph beginning on page 4, line 18:

Figures 1A-1D show FIV Western blot analysis of subjects #FH1 and #FH2. FIV_{Shi} (D) and FIV_{Bang} (B) Western blots (Figures 1A-1C) were reacted with sera from subjects #FH1, #FH2, and #FH5 (control individual with minimum cat exposure) for 20 hours. Experimentally FIV-infected cat (Cat +) was used as the source of strongly reactive control serum and uninfected SPF cat (Cat -) was used as the source of non-reactive control serum. Key bands are highlighted with an arrowhead on the left. Figure 1D: Virus neutralizing antibodies to FIV and HIV were detected in cultures. a Western blot of human sera on FIV_{Shi}.

~~**Figures 2A and 2B**~~**Figures 2A-2F** show alignment of gag sequences of cat #FC1 and subject #FH1. ~~Figure 2A shows~~ Figures 2A-2D show alignment of gag nucleotide sequences. ~~Figure 2B shows~~ Figures 2E-2F show alignment of gag amino acid sequences. Gag sequences of the nine clones isolated from cat #FC1 and subject #FH1 are shown in comparison to the consensus sequence of cat #FC1 (top sequence). Hyphens denote nucleotide or amino acids identical to the consensus sequence derived from cat #FC1 and those, which differ from the consensus, are presented with the appropriate nucleotide or amino acid symbols. In Figures 2A-2D the nucleotide consensus sequence is SEQ ID NO: 3; FC1 #4 is SEQ ID NO: 4; FC1 #5 is SEQ ID NO: 5; FC1 #6 is SEQ ID NO: 6; FC1 #10 is SEQ ID NO: 7; FC1 #12 is SEQ ID NO: 8; FC1 #13 is SEQ ID NO: 9; FC1 #14 is SEQ ID NO: 10; FC1 #15 is SEQ ID NO: 11; FC1 #16 is SEQ ID NO: 12; FH1 #1 is SEQ ID NO: 13; FH1 #3 is SEQ ID NO: 14; FH1 #10 is SEQ ID NO: 15; FH1 #20 is SEQ ID NO: 16; FH1 #22 is SEQ ID NO: 17; FH1 #24 is SEQ ID NO: 18; FH1 #41 is SEQ ID NO: 19; FH1 #42 is SEQ ID NO: 20; and FH1 #43 is SEQ ID NO: 21. In Figures 2E-2F the amino acid consensus sequence is SEQ ID NO: 22; FC1 #4 is SEQ ID NO: 23; FC1 #5 is SEQ ID NO: 24; FC1 #6 is SEQ ID NO: 25; FC1 #10 is SEQ ID NO: 26; FC1 #12 is SEQ ID NO: 27; FC1 #13 is SEQ ID NO: 28; FC1 #14 is SEQ ID NO: 29; FC1 #15 is SEQ ID NO: 30; FC1 #16 is SEQ ID NO: 31; FH1 #1 is SEQ ID NO: 32; FH1 #3 is SEQ ID NO: 33; FH1 #10 is SEQ ID NO: 34; FH1 #20 is SEQ ID NO: 35; FH1 #22 is SEQ ID

NO: 36; FH1 #24 is SEQ ID NO: 37; FH1 #41 is SEQ ID NO: 38; FH1 #42 is SEQ ID NO: 39; FH1 #43 is SEQ ID NO: 40.

Figures 3A-3C show HIV-1 Western blot analysis of subjects #FH1 and #FH2. Strongly reactive (++), weakly reactive (+), and non-reactive (-) control human sera from the Bio-Rad Novapath HIV-1 Immunoblot Kit and Cambridge Biotech HIV-1 Western Blot Kit were used as controls for respective HIV-1 Western blot strips. Serum from subject #FH5 with miminal exposure to cats, was used as additional negative control for Western blots from both companies. The durations of serum incubation are shown and FDA-approved recommended incubation periods are also designated with asterisk. Key bands are highlighted with an arrowhead on the left.

Figure 4 shows gag nucleotide sequence comparison of cat #FC1, subject #FH1 and FIV strains. Gag sequences of cat #FC1 (SEQ ID NO: 42) and subject #FH1 were compared to all FIV strains available in our laboratory (SEQ ID NO: 43 is $FIV_{PETALUMA}$; SEQ ID NO: 44 is FIV_{UK8}; SEQ ID NO: 45 is FIV_{PPR}; SEQ ID NO:46 is $FIV_{SENDAI-1}$; SEQ ID NO: 47 is FIV_{Bang}; SEQ ID NO: 48 is $FIV_{AOMORI-1}$; SEQ ID NO: 49 is $FIV_{AOMORI-2}$; SEQ ID NO: 50 is $FIV_{SENDAI-2}$; SEQ ID NO: 51 is FIV_{TM2}; SEQ ID NO: 52 is $FIV_{YOKOHAMA}$; SEQ ID NO: 53 is $FIV_{SHIZUOKA}$; and SEQ ID NO: 54 is $FIV_{FUKUOKA}$. The consensus sequence of subject #FH1 is shown at the top (SEQ ID NO: 41). Nucleotides identical to the consensus sequence of subject #FH1 (top sequence) are designated as a dot and those which differ from the consensus are presented with the appropriate nucleotide symbols. Gaps in sequence are presented as hyphens.

Figures 5A-5E show HIV-1 and FIV Western blot analysis of experimentally FIV-infected cats and pet cats. SPF cats #H3J, #D55, #455, and #X3D were experimentally infected with FIV_{Pet} (subtype A), FIV_{UK8} (subtype A), FIV_{Shi} (subtype D), and FIV_{Bang} (subtype A_{gag}/B_{Env}), respectively. FIV_{Bang} has Gag sequence of FIV subtype A and Env sequence of FIV subtype B. These serum were reacted with HIV-1 Western blots (Figures 5A and 5B) or FIV Western blots (Figures 5C, 5D, and 5E). Serum samples of these cats before FIV infection were negative by both FIV and HIV-1 Western blot analyses (data not shown). Serum from pet cats #FC1 and #FC2 were also tested for their reactivity to HIV-1 and FIV antigens. Cat #C9V (7 months post-inoculation serum shown) is an SPF cat inoculated with FIV isolated from pet Cat #FC1. All sera were incubated at serum dilution of 1:100. All procedures are identical to those described in Figures 1 and 3 unless stated

otherwise. Key bands are highlighted with an arrowhead on the left. FDA-approved serum incubation periods of 20 hours for Cambridge Biotech HIV-1 Western Blot Kit (Figure 5A) and 0.5 hour for Bio-Rad Novapath HIV-1 Immunoblot Kit (Figure 5B) were performed with the cat sera. Serum incubation for FIV Western blots was 20 hours (Figures 5C, 5D, and 5E).

Figures 6A-6C show HIV-1 and HTLV-1/2 immunoblot analysis of FIV-infected and FIV-vaccinated cat sera. Sera from FIV-infected cats and FIV-vaccinated cats were tested for cross-reactive antibodies to HIV-1 with BioRad Novapath HIV-1_{UCD1} and Cambridge Biotech HIV-1_{IIIB} immunoblot kits (Figures 6A & 6B) and to HTLV-1/2 with Cambridge Biotech HTLV-1/2 immunoblot kit (Figure 6C). Selected cat sera with unique banding patterns are shown to demonstrate the presence of cross-reactive antibodies with various patterns of reactivity to HIV-1 proteins. Serum samples of these cats before FIV inoculation were negative by both HIV-1 and HTLV-1/2 immunoblot analyses (data not shown).

Figures 7A and 7B show temporal development of cross-reactive antibodies to HIV-1. FIV and HIV-1 immunoblots are shown using selected sera from: Figure 7A, FIV-infected cats from different weeks post-inoculation (wk pi or pi); and Figure 7B, FIV-vaccinated cats from different weeks post-vaccination (post-vaccination number. Sera were compared to their pre-inoculation or pre-vaccination sera (Pre).

Figure 8 shows absorption of cat sera with viral antigens. Figure 8A: Cat sera were absorbed against inactivated FIV-infected cells followed by competition on HIV-1 immunoblots by inactivated FIV. Absorptions were also performed with PBS, uninfected cat FeT-J cells, and uninfected human H9/HuT-78 cells. Figure 8B: Sera were absorbed against PBS, uninfected cells lysate, or inactivated HIV-infected HuT-78 cells prior to incubation with HIV-1 immunoblot strips. Absorptions were performed for 2 hours at room temperature before development with anti-cat reagents. Figure 8C: FIV-vaccinated cat sera containing neutralizing antibodies to HIV-1 (Cat #C6G and #C9K) and sera from uninfected FeT-J cell immunized cats (Cats #C6E and #3G5) were tested at 1:100 dilution for reactivity to 5 μg/ml of either uninfected FeT-J cells, uninfected HuT-78 cells, or purified FIV_{Pet}. Vaccinated cat sera had reactivity to FIV surface Env gp95 (arrow head). No significant reactivities were detected to uninfected FeT-J and HuT-78 proteins at 95 kDa, 120 kDa, and 160 kDa, suggesting that serum reactivity to HIV-1 and FIV envelopes were not due to

nonspecific reactivity to cellular proteins. In addition, cats immunized with uninfected FeT-J cells had no reactivity to cellular proteins at 95 kDa but had antibodies reactive to cellular proteins close to 120 kDa and 160 kDa. However, these anti-cellular antibodies were close but distinctly different from reactivity to HIV-1 gp120 and gp160. Figure 8D: Serum from a cat immunized with uninfected FeT-J cells was absorbed against PBS, FeT-J, H9/HuT-78 cells, and FIV-infected Fet-J cells. Reactivities in serum from Cat #305 were readily absorbed against uninfected cat and human cells. Immunoglobulin levels of all absorbed sera were not significantly altered by infected-cell absorptions when compared to PBS and uninfected-cell absorbed sera. Seven % PAGE gels were used for developing immunoblots to increase resolution of high molecular weight proteins. Molecular weights (M) are presented in kDa.

Figures 9A and 9B show reactivity of FIV-vaccinated cat sera and PBMC to HIV p24 and gp160. Figure 9A: Sera from cats immunized with dual-subtype FIV vaccine were tested by ELISA using recombinant HIV-1_{BRU} p24, HIV-1_{IIIB} gp160, and FIV p24. ELISA results at serum dilution of 1:300 are presented as mean difference between pre- and post-vaccination sera. Figure 9B: PBMC from dual-subtype FIV vaccinated cats at 2 weeks post-5th vaccination were tested for interferon-γ production in response to recombinant HIV-1_{BRU} p24, HIV-1_{IIIB} gp160, and FIV p24. All PBMC stimulated with SEA were positive for IFNγ production (data not shown). The average of the triplicate samples are shown for IFNγ production. Standard deviations of the average IFNγ titer were less than 10% of the mean.

Figure 10 shows sequence alignments for partial FIV gag sequence from subject #FH1 PBMC following Real-time PCR. The Consensus sequence is SEQ ID NO: 55; SEQ ID NO: 56 is a partial FIV_{Pet} gag sequence; SEQ ID NO: 57 is a partial FIV_{Bang} sequence; SEQ ID NO: 58 is a partial FIV_{JSY3} gag sequence; SEQ ID NO: 59 is a partial FIV_{UK8} gag sequence; SEQ ID NO: 60 is a partial $FIV_{Shizuoka}$ sequence; SEQ ID NO: 61 is a partial $FIV_{AOMORI\ 1}$ sequence; SEQ ID NO: 62 is a partial FIV_{TM2} gag sequence; SEQ ID NO: 63 is a partial FIV reverse transcriptase forward sequence; SEQ ID NO: 64 is a partial FIV reverse transcriptase probe sequence; SEQ ID NO: 65 is a partial FIV reverse transcriptase reverse sequence; SEQ ID NO: 66 is a FC1 gag sequence; SEQ ID NO: 67 is the A9=4 sequence; SEQ ID NO: 68 is the B4=5 sequence.

Please amend the Brief Description of the Sequences paragraph beginning on page 8, line 2:

SEQ ID NO. 1 is a sense primer or amplification of FIV *gag* that can be used according to the present invention.

SEQ ID NO. 2 is a antisense primer or amplification of FIV *gag* that can be used according to the present invention.

SEQ ID NO: 3 is a nucleotide sequence of the present invention.

SEQ ID NO: 4 is a nucleotide sequence of the present invention.

SEQ ID NO: 5 is a nucleotide sequence of the present invention.

SEQ ID NO: 6 is a nucleotide sequence of the present invention.

SEQ ID NO: 7 is a nucleotide sequence of the present invention.

SEQ ID NO: 8 is a nucleotide sequence of the present invention.

SEQ ID NO: 9 is a nucleotide sequence of the present invention.

SEQ ID NO: 10 is a nucleotide sequence of the present invention.

SEQ ID NO: 11 is a nucleotide sequence of the present invention.

SEQ ID NO: 12 is a nucleotide sequence of the present invention.

SEQ ID NO: 13 is a nucleotide sequence of the present invention.

SEQ ID NO: 14 is a nucleotide sequence of the present invention.

SEQ ID NO: 15 is a nucleotide sequence of the present invention.

SEQ ID NO: 16 is a nucleotide sequence of the present invention.

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SEQ ID NO: 19 is a nucleotide sequence of the present invention.

SEQ ID NO: 20 is a nucleotide sequence of the present invention.

SEQ ID NO: 21 is a nucleotide sequence of the present invention.

SEQ ID NO: 22 is an amino acid sequence of the present invention.

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SEQ ID NO: 38 is an amino acid sequence of the present invention.

SEQ ID NO: 39 is an amino acid sequence of the present invention.

SEQ ID NO: 40 is an amino acid sequence of the present invention.

SEQ ID NO: 41 is a nucleotide sequence of the present invention.

SEQ ID NO: 42 is a nucleotide sequence of the present invention.

SEQ ID NO: 43 is a nucleotide sequence of the present invention.

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